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product of civilization. Modesty comes finally to be a feeling of reluctance to all vulgar publicity, either as to one's person or mind, a reluctance to all display, a delicacy and refinement, which is late born in evolution, and is, in psychical progress, destined to fuller and higher development, as *versus* the mere fear of disgusting, which, as Mr. Ellis shows, is in decadence in high civilization. Modesty as a mode of self-respect is quite distinct from respect and fear of others' opinions and feelings towards ourselves. Mr. Ellis, indeed, barely mentions (p. 145) modesty as a self-respect, but he seems to connect it with his general treatment. It is noteworthy that modesty should be a term which denotes actions to conceal both defects and excellences, but that real modesty is at bottom as psychosis, a personal delicacy about social conspicuousness, and may have no real psychic connection with either of the other phases, that is, it proceeds not from sensitiveness to one's own excellences or defects as viewed by others, but merely a general reluctance to have one's personality become in any wise open to public gaze and prying.

The other psychic basis of modesty-actions which Mr. Ellis mentions, namely, fear of losing in some way sexual attractiveness, may be objected to on the same ground as not real psychic modesty.

If modesty were as closely related to fear as is claimed we should expect similarity of expression, but the blush of modesty is the converse of the pallor of fear. The most brazen, unmodest woman fears exposure so far as it is disgusting to others. The blush is not the expression of fear, but of self-attentive embarrassment, and secondarily the expression of real psychic modesty. We cannot, with Mr. Ellis, relegate the influence of darkness in restraining modesty to the blushing being thereby concealed; but at least the more obvious and primary factor is that modesty and modesty-action is originally a concealment from the eyes of others, and if the eyes of others are concealed by darkness this action and feeling naturally disappear. Mr. Ellis does not explain how shame is distinct from modesty. Certainly, so far as shame is modesty shocked, it is psychologically modesty.

Our impression on the whole, then, is that while the origin and evolution of modesty-actions are as precautions against causing disgust, yet modesty as distinctive psychic quality which exhibits the same reactions is far later in date.

HIRAM M. STANLEY.

LAKE FOREST, ILL., March 7, 1899.

#### TRANSMITTED CHARACTERISTICS IN A WHITE ANGORA CAT.

TO THE EDITOR OF SCIENCE: The following observations furnished me by Dr. S. F. Gilbert, of Elysburg, Northumberland county, Pa., concerning his white Angora cat, which I examined a short time since, may be of some interest to those working upon the subject of the transmission of acquired characters.

The cat of Dr. Gilbert is of the white Angora breed. The parentage of this cat is unknown. The mother-cat, referred to above, has the right eye blue and the left yellow, and is about three years old. The kitten of this cat is eight months old, male, and has the right eye yellow and the left eye blue, just the reverse of the mother. The kitten is subject to fits. The fits, as Dr. Gilbert describes them, are of a violent, excitable kind; the kitten running aimlessly about, falling down and scratching, or striking with its feet. These fits, which have occurred twice, lasted about ten minutes. The father of Dr. Gilbert's kitten is a large mongrel with white breast and face, the other parts of the body being zebra-colored.

The mother has had seventeen kittens, eleven of which were white, two having different colored eyes. Two of the kittens were deaf, and in general the breed seems to be very tender and difficult to raise.

JOHN W. HARSHBERGER.

UNIVERSITY OF PENNSYLVANIA.

#### OSMOTIC SOLUTIONS.

TO THE EDITOR OF SCIENCE: A letter in your columns shows that I ought to explain a special feature of the solutions used for determining osmotic pressure. In my recent paper on 'Physiological Osmosis' (SCIENCE, Vol. IX., p. 206) I cited a one-per cent. solution as having one part of sugar in one hundred parts of

water. These were the proportions actually employed by Pfeffer and given by Ostwald and others. As compared with the conventional composition of a 1% solution they involve a deficiency of one ninety-ninth part of the sugar, which is far within the limits of error in these investigations; nor ought they to mislead any body, as the proportions of this kind of percenticity are explained in the text-books and were given in my paper.

The departure from the conventional proportions of a one-per-cent. solution are not from error nor arbitrary, as the method of comparing the osmotic pressure of different solutions relatively to the gram-molecules of the substances dissolved involves the employment of a uniform quantity of the solvent.

G. MACLOSKIE.

PRINCETON UNIVERSITY, March 25, 1899.

#### NOTES ON PHYSICS.

##### WIRELESS TELEGRAPHY.

AT a recent meeting of the Institution of Electrical Engineers, Marconi described his recent work along the lines of wireless telegraphy. In transmitting he uses a 10-inch spark coil and a battery giving about 14 volts and 6 to 8 amperes. For his spark circuit he uses two arrangements, depending upon whether it is necessary to confine the sending of the signals to one direction or not. In the former case cylindrical reflectors are used and capacity is obtained by strips of sheet metal attached to the two spark balls. In the latter case there are no reflectors and one ball is grounded while the other is connected to a vertical wire. A Morse key in the primary circuit makes the signals. The length of the vertical wire depends upon the distance to be covered. A wire 20 feet high will transmit one mile; 40 feet, 4 miles; 80 feet, 10 miles approximately; the distance seems to increase about as the square of the height of the wire. The receiver consists of a coherer, or sensitive tube, about four centimeters long, fitted with metallic pole-pieces and partly filled with nickel and silver filings. When not under the action of the radiation the resistance of this tube is practically infinite, but is reduced by the cohering of the filings

under the action of radiation to from 100 to 500 ohms. This allows a current to flow from a local battery through a relay circuit in which is a vibrating tapper and a sounder, or writer. The former, tapping the coherer, restores the high resistance by separating the filings. The receiver is also supplied, either with the metal strips and reflector or with the ground connection and vertical wire, according as the former or the latter is used in the transmission.

When the reflectors are used the ray within which the signals can be received may be made very narrow; in one case at a distance of  $1\frac{1}{2}$  miles it was only about 100 feet. Marconi found that horizontal wires were useless, and accounted for this by the theory that the waves from the vertical wire had a vertical plane of polarization and were, therefore, not absorbed by the surface of the earth.

A number of installations have worked successfully and without difficulty for prolonged intervals and in all sorts of weather. In one case an 18-mile transmission was carried on with an average of about one thousand words per day. With the vertical wire transmitter, hills seem to make little difference with the transmission. In one case a distance of five miles over land, with several intervening hills, was successfully covered.

F. C. C.

#### BOTANICAL NOTES.

##### AN ELEMENTARY BOOK ON LICHENS.

IT is a hopeful sign when we find amply qualified men engaging in the work of writing elementary text-books for the use of students in the schools. It has been the duty of the writer on more occasions than he has wished to severely criticise books written for beginners by those who themselves had but little knowledge of the matter treated. It has been at once the scandal and the weakness of the elementary science text-books that they have too often contained very little Science, for the very good reason that their compilers were unacquainted with Science. Some time ago Dr. Albert Schneider published a large treatise on the lichens, which at once proved his profound knowledge of the subject as well as his ability to communicate it clearly and forcibly. It is not necessary that